

Active Living Research

Building Evidence to Prevent Childhood Obesity and Support Active Communities
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A photograph of four children riding bicycles on a dirt trail through a forest. In the foreground, a boy in a red and white striped shirt and a white helmet is smiling. Next to him, a girl in a yellow and blue striped shirt is also smiling. Behind them, two other children are visible, also on bicycles. The background is filled with tall evergreen trees and sunlight filtering through the leaves.

The Power of Trails for Promoting Physical Activity in Communities

INTRODUCTION

Promoting physical activity among children and adults is a priority national health objective in the United States.¹ Regular physical activity lowers the risk of chronic diseases and is an important strategy for reversing the obesity epidemic.² A growing body of evidence shows that the built environment can positively influence physical activity for both recreational and transportation purposes.³⁻⁵ Broadly defined, the built environment includes the man-made surroundings that provide settings for physical activity, such as neighborhoods, streets, public transportation systems, commercial centers, schools, parks, trails and other outdoor recreational spaces.

Trails are commonly used for physical activity. A study conducted in the United States in 2006 indicated that about one-quarter of adult men and women used a walking, hiking or bicycling trail at least once per week.⁶ Currently, no data are available on trail use by children and adolescents. However, another U.S. study, also conducted in 2006, showed that the percentage of park area close to homes, such as spaces that included nature trails and bicycle paths, was associated with higher levels of physical activity among young children.⁷

The Rails to Trails Conservancy estimates that the United States has 19,000 miles of rail-trails—trails built along former rail lines—and more than 1,100 trail projects under development.⁸ Trails help connect people of all ages to the places they live, work and play, and they provide an ideal setting for walking, bicycling and other modes of recreational physical activity and active transportation. Community trails are diverse in character and may include paved and unpaved trails, rail-trails, short circular walking paths around schools and workplaces, and trails within parks.

This brief highlights findings about specific trail characteristics that appear to attract regular users and examines how trails influence physical activity among various populations.

Key Research Results

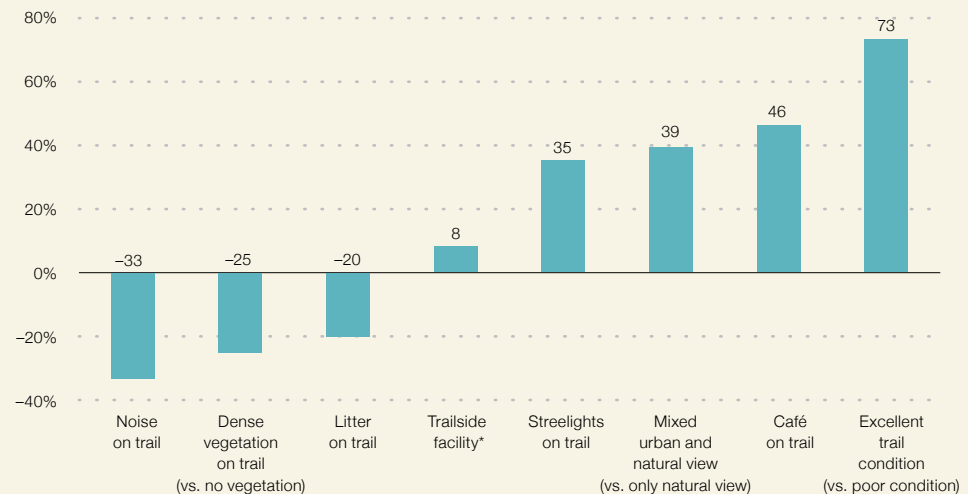
Proximity, trail characteristics, social conditions and perceived benefits impact trail use.

■ **Local trails that are convenient to home attract regular users.**^{9, 10} A study of a Chicago trail system found that among 2,873 trail users 59 percent reported that they used local trails “virtually every week or every day.”¹¹

■ **Distance matters — the closer people live to trails the more likely they are to use them.**^{12–15} One study in Massachusetts found that among 363 adults the likelihood of using a suburban rail-trail decreased by 42 percent for every .25 mile increase in distance from home to the trail.¹⁶ A Minneapolis study also found sharp declines in trail use among bicyclists who had to travel 1.5 miles or further to access the trail.¹⁷

■ **Trail use appears greater in neighborhoods with higher levels of population density, commercial activity, parking lot area and greenness.**^{18, 19} Two related studies of an Indianapolis trail system that measured trail use at 30 locations using infrared counters over several years found that for every 100 residents per square kilometer who lived in neighborhoods near trails, there was about a 2 percent increase in trail use.^{20, 21}

■ **Trail characteristics, including surface condition^{22–24} and amenities, such as restrooms, drinking fountains,²⁵ streetlights²⁶ and trailside facilities (e.g., cafes²⁷), are positively related to trail use.** As shown in Figure 1, a 2007 study of three lengthy (>15 mile) urban trails in Los Angeles, Chicago and Dallas found that excellent trail surface conditions, streetlights and cafes were associated with 35 percent to 73 percent higher levels of trail use.²⁸

FIGURE 1. Trails with better conditions and more amenities have higher rates of usage²⁹

*Trail use increased by 8 percent for each additional trailside facility

■ **Social conditions on trails that appear to deter or detract from their use include crowding^{30–32} and perceived safety concerns among people engaged in different activities.^{33–36}**

For example, the most common complaints of walkers and runners on a paved trail in Cleveland were that in-line skaters and bicyclists traveled too fast and did not give enough warning when passing.³⁷

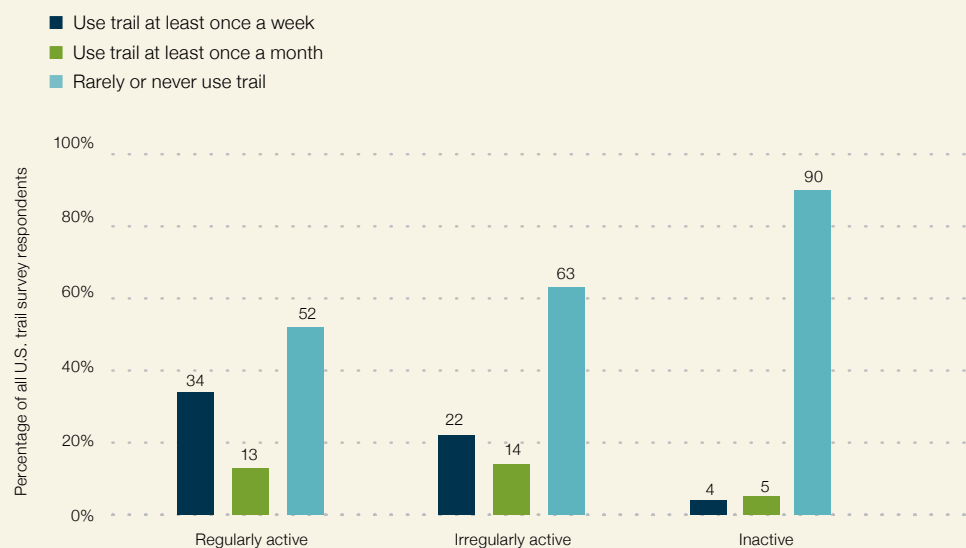
■ **Trail users identify fitness and health,^{38,39} relaxation and solitude,^{40–42} fun and enjoyment,^{43,44} seeking a challenge or personal control,^{45,46} and being outdoors and learning about nature^{47–50} as benefits and motivating factors associated with using trails.** Younger adults, ages 18 to 49 years, who used the Katy Trail in Missouri rated having fun significantly higher than did older trail users, whereas older adults more highly rated the following benefits of the trail: providing opportunities for developing physical skills and ability; improving and maintaining physical fitness; and providing a challenge, a way to explore and learn about nature, and a way to meet new people.⁵¹

Trails appear to serve as a cost-effective approach for promoting physical activity. However, evidence on the effects of trails on physical activity are so mewhat mixed.

■ **Recent studies suggest that trails make economic sense as an approach for physical activity promotion.^{52–54}** Using data from the National Medical Expenditure Survey, one Nebraska study found that for every \$1 spent on trails, there was almost \$3 in savings in direct medical costs.⁵⁵ A related study on the same trail system estimated that the average annual cost of constructing and maintaining trails was \$98 per user for adults who reported that they had increased their physical activity since they began using trails, \$142 for trail users reporting that they were physically active for general health, and \$884 for trail users who reported being physically active for weight loss.⁵⁶

■ **Evidence from cross-sectional studies suggests positive relationships between trails and physical activity levels in adults.** Two related studies of adults living in rural southeast Missouri found 32 percent to 55 percent of trail users reported increased physical activity levels after they began using local trails.^{57,58} One study found that women were more than twice as likely as men to have increased the amount of walking since they began using local trails.⁵⁹ As shown in Figure 2, a national survey of 3,700 U.S. adults found that 34 percent of regularly active adults reported using a trail at least once a week, whereas only 22 percent of irregularly active and 4 percent of inactive adults reported using trails this often.⁶⁰

FIGURE 2. **Frequency of trail use among U.S. adults with different overall physical activity levels⁶¹**



■ **Designing parks that include trails and actively promoting trail use within parks may help increase physical activity.** In a study of four neighborhoods in Ontario, Canada, researchers found that parks with paved trails were almost 26 times more likely to be used for physical activity than were parks without trails.⁶² A 2010 evaluation of pilot projects at three U.S. national parks that aimed to increase physical activity during park visits (Acadia, Point Reyes, Zion) indicated that distributing promotional materials, such as maps and brochures, was associated with an 11 percent increase in trail use of 60 minutes or more.⁶³

■ **Evidence on the effects of community trails on bicycling, particularly for travel purposes, is somewhat mixed.** In Australia, a 3-month mass media campaign to promote a newly constructed rail-trail increased bicycling time from 17 to 28 minutes per week among adults living within 1.5 kilometers of the trail.⁶⁴ That same campaign was associated with a decrease in bicycling among residents living further away.⁶⁵ A study of 1,653 adults living in the Minneapolis-St. Paul area found that proximity to bicycle trails had no effect on bicycle use.⁶⁶

■ **Studies that assessed the impact of building new trail segments⁶⁷ or developing trail promotional campaigns⁶⁸ on changing physical activity levels over time mostly show no beneficial effects.** For example, a study conducted in North Carolina demonstrated that constructing a new rail-trail segment did not appear to increase total walking or walking for transportation purposes among 366 adults who lived within two miles of the trail.⁶⁹

■ **The effects of trails on physical activity among racial and ethnic groups at highest risk for physical inactivity and obesity is an understudied area.** A study of Latinos who used the Lincoln Park Trail in Chicago found that the most popular activities along the trail tended to be more sedentary.⁷⁰ About 60 percent of study participants reported that they sat and relaxed along the trail at least several times per month, whereas 47 percent reported walking.⁷¹

Recent legislation offers opportunities for developing new trails, but sustained commitment from numerous stakeholders is needed.

■ **State legislators are showing increasing interest in supporting the development of new trails.** From 2001 to 2008, more than 900 legislative bills with community-trail content were introduced in state legislatures, and almost one-third of these bills were enacted.⁷² Almost one-quarter of the enacted bills had appropriated funding.⁷³

■ **It can take years and the combined and persistent efforts of community advocacy groups, planners and politicians to build new trails.** A multi-site case study of trails in Hawaii, Massachusetts, Missouri, North Carolina, South Carolina and Washington showed that supportive policies at the local, state and federal levels, leadership from local government officials and trail advocates, and community involvement were critical components of the development process.⁷⁴

Conclusions

■ A small body of research suggests that community trails are a cost-effective means for promoting physical activity and potentially reducing medical expenses.

■ Strong, consistent evidence shows that having trails close to where people live is associated with higher levels of trail use among adults.

■ Good surface condition and certain trail amenities are among the trail characteristics that are positively associated with trail use. Yet research shows that a “one size fits all” approach is not effective for promoting physical activity, and that various types of trails are needed to attract a wide range of potential users, including people who are inactive.

■ To date, supportive evidence linking new trails to increased physical activity is limited.

■ No studies on trail use have included children, and very few studies have examined trail use among racial and ethnic populations.

Areas for Future Research

- Identifying economic benefits associated with trails to support trail advocacy efforts and positively influence funding decisions regarding trails and recreation and urban planning initiatives.
- Understanding and determining trail attributes that encourage trail use among children, racial and ethnic groups, and older adults.
- Local, state and federal officials need better measures of trail use to help prioritize funding to achieve a more balanced transportation system.
- Assessing the potential of trails to support physical activity among groups at highest risk for obesity, including Black, Latino, and other racial and ethnic populations, as well as people who live in lower-income or under-resourced communities.
- Researchers should collaborate with local organizations that fund and construct trails to plan and implement rigorous evaluations of the impact that new trails have on physical activity.

Policy Implications

- State and local policy-makers should support policies and funding for trails that are convenient to homes; have good surface conditions; and provide amenities such as drinking water, restrooms and parking lots.
- Public health, transportation, planning, and parks and recreation officials should collaborate to identify populated areas suitable for building trails that will support walking, bicycling and other modes of recreational physical activity and active transport. Stakeholders should use this information to advocate for transportation and planning policies that will accelerate trail development.

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Active Living Research, a national program of the Robert Wood Johnson Foundation, stimulates and supports research to identify environmental factors and policies that influence physical activity for children and families to inform effective childhood obesity prevention strategies, particularly in low-income and racial and ethnic communities at highest risk. Active Living Research wants solid research to be part of the public debate about active living.

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